SEMINARIO

OPTIMIZACIÓN Y EQUILIBRIO

Expositor
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Title
Convergence of descent methods in non-smooth non-convex optimization

Rèsumé:

Following recent advances, we present a large class of descent methods which converges strongly to a critical point of a non-smooth non-convex function, under the condition that it has a good behavior around its critical points.

More exactly we consider proper lower semi-continuous functions satisfying the so-called Kurdyka-Lojasiewicz inequality. It is satisfied in finite dimensions by tame functions (like semi-algebraic or bounded sub-analytic functions), while in infinite dimensions we know some useful examples in PDE, for instance energies of elliptic PDE with analytic non-linearities.

This class of descent methods covers the gradient, proximal, Forward-Backward algorithms and the alternate proximal method, which are all particular cases of what we called the Alternate Forward-Backward algorithm. We considered the possibility to change the ambient metric during the computation : this should permit to increase the speed of convergence of the sequence, by modifying the ambient space metric according to the geometry of the function, like in Newton methods. It opens the road to nonconvex versions of Levemberg-Marquardt algorithm or Newton-like projected methods.

Miércoles 25 de Septiembre del 2013, a las 16 : 30 hrs, Sala de Seminarios CMM, séptimo piso.